OIPE MAY 12 2004 PATENT & TRADEMARK OFFICE

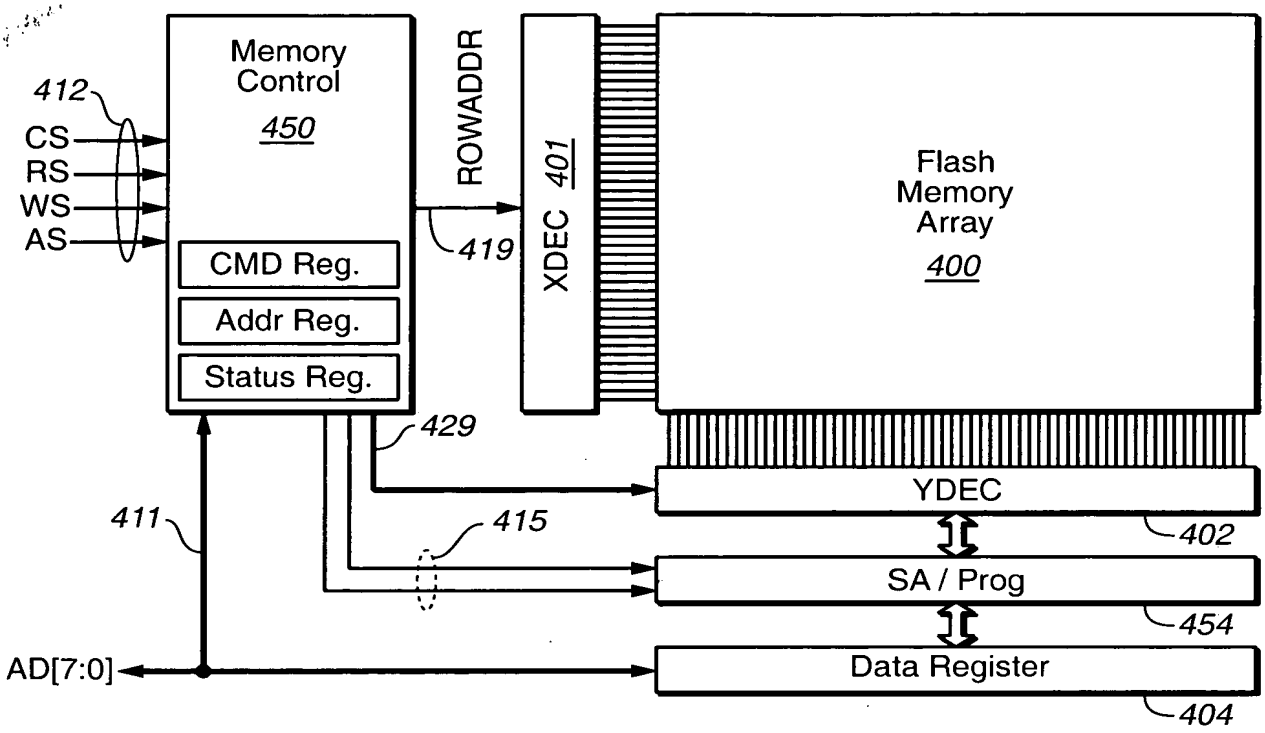


FIG._1
(PRIOR ART)

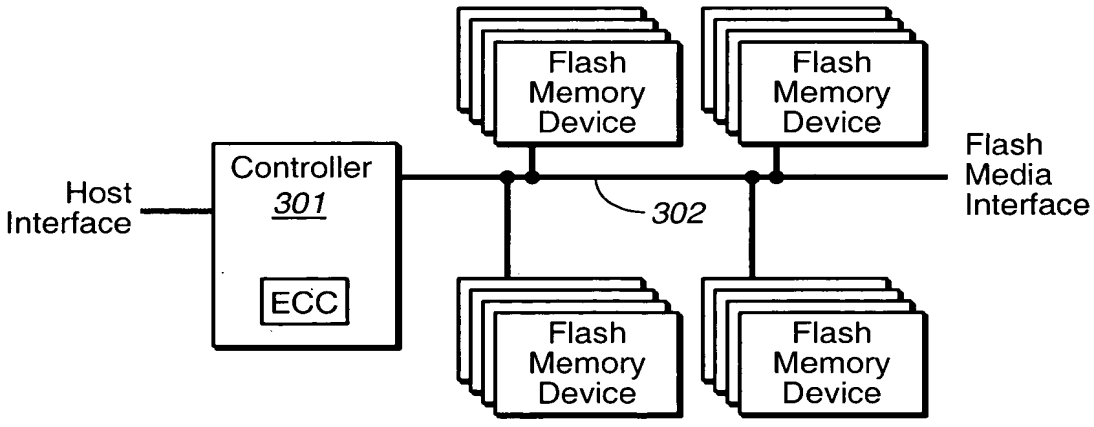


FIG._2
(PRIOR ART)

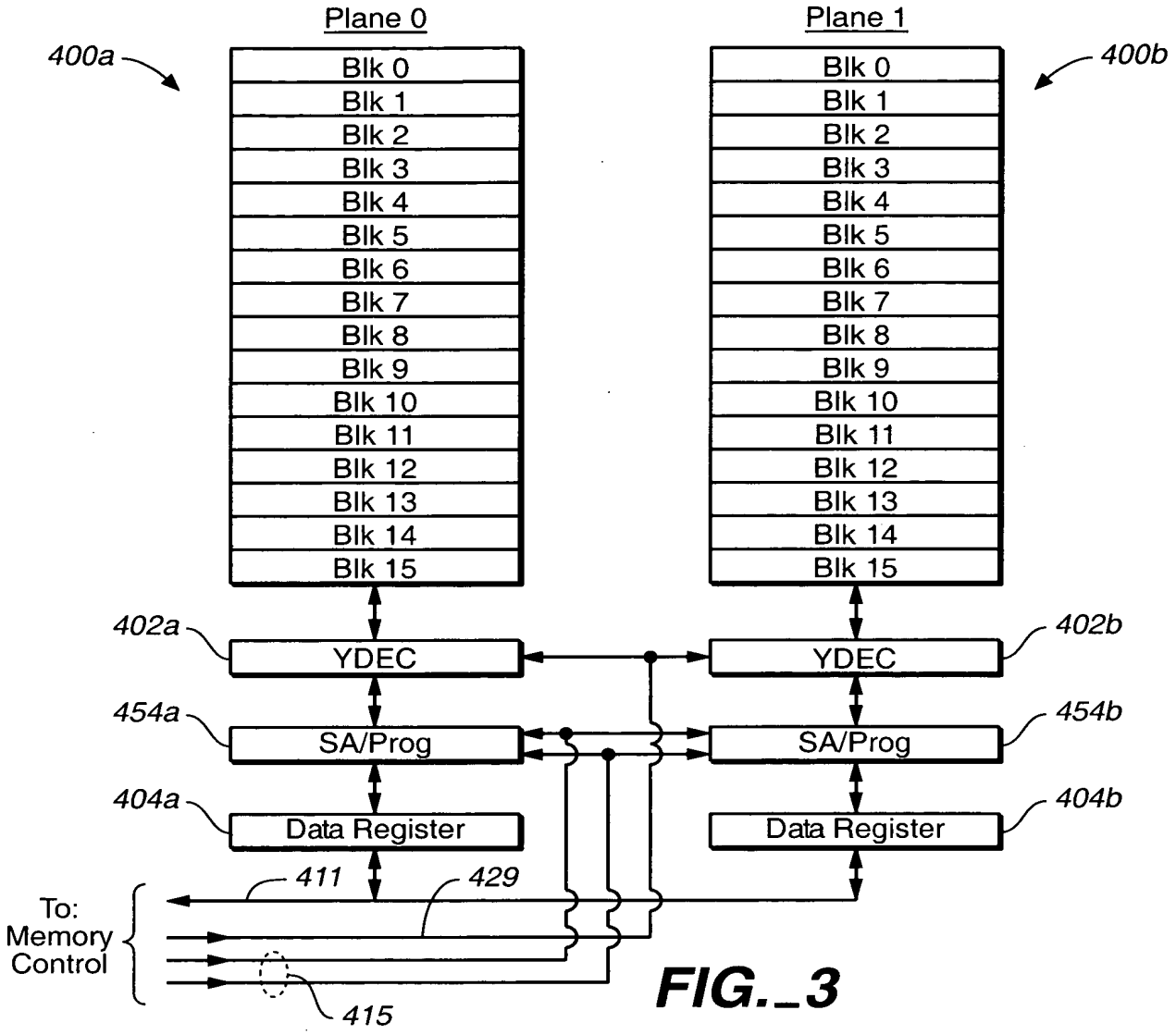

Plane 0
Plane 1
400a
400b
Blk 0
Blk 1
Blk 2
Blk 3
Blk 4
Blk 5
Blk 6
Blk 7
Blk 8
Blk 9
Blk 10
Blk 11
Blk 12
Blk 13
Blk 14
Blk 15
402a
402b
YDEC
454a
454b
SA/Prog
404a
404b
Data Register
411
429
To:
Memory
Control
415

FIG._3

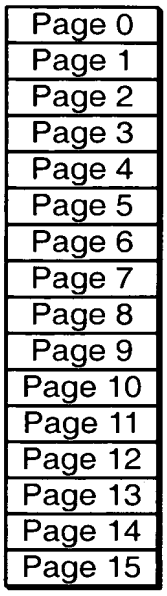


FIG._4

LBN	PBN
0	0
1	1
2	2
3	3
4	4
5	5

FIG._7A

LBN	PBN
0	0
1	1
2	2
3	13
4	4
5	5

FIG._7B

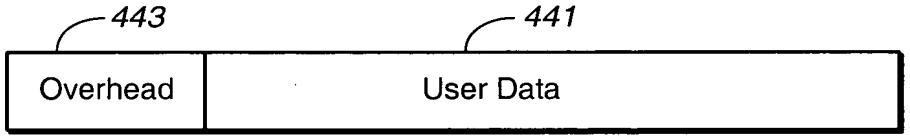


FIG._5

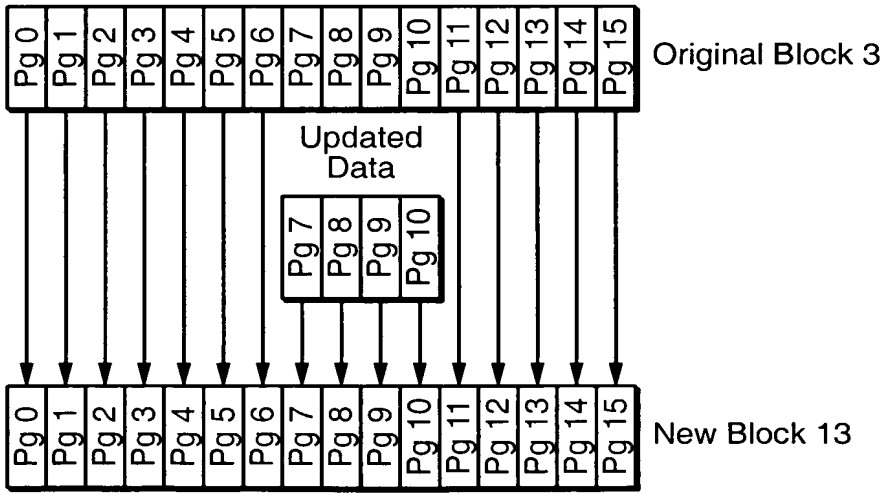


FIG._6

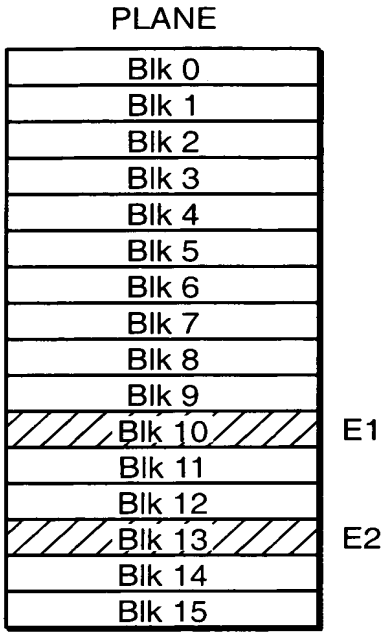

PLANE
Blk 0
Blk 1
Blk 2
Blk 3
Blk 4
Blk 5
Blk 6
Blk 7
Blk 8
Blk 9
Blk 10
E1
Blk 11
Blk 12
Blk 13
E2
Blk 14
Blk 15

FIG._8

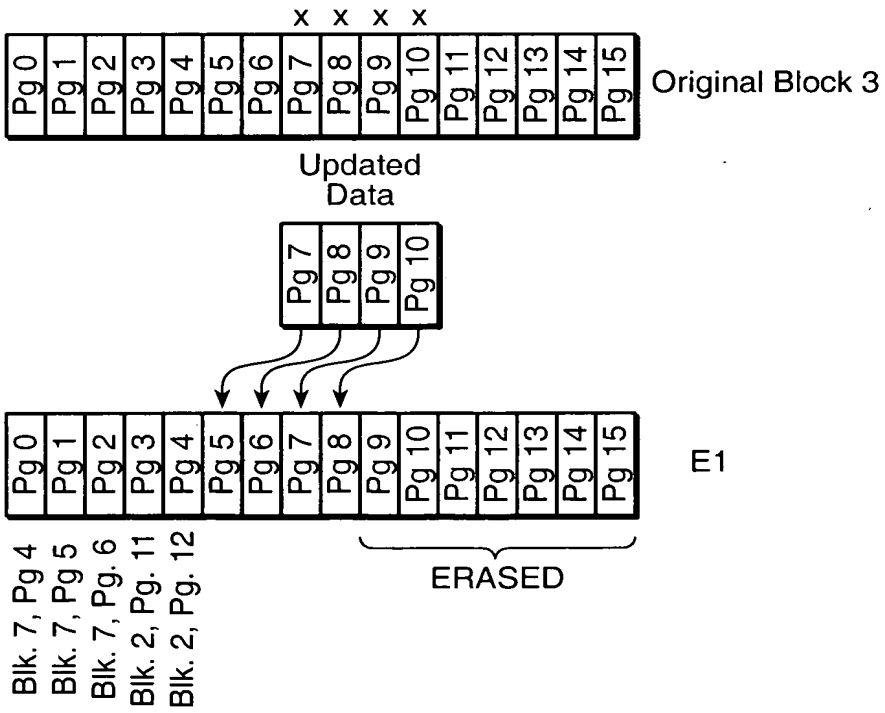

x x x x
Pg 0
Pg 1
Pg 2
Pg 3
Pg 4
Pg 5
Pg 6
Pg 7
Pg 8
Pg 9
Pg 10
Pg 11
Pg 12
Pg 13
Pg 14
Pg 15
Original Block 3
Updated Data
Pg 7
Pg 8
Pg 9
Pg 10
E1
ERASED
Blk. 7, Pg 4
Blk. 7, Pg 5
Blk. 7, Pg. 6
Blk. 2, Pg. 11
Blk. 2, Pg. 12

FIG._9

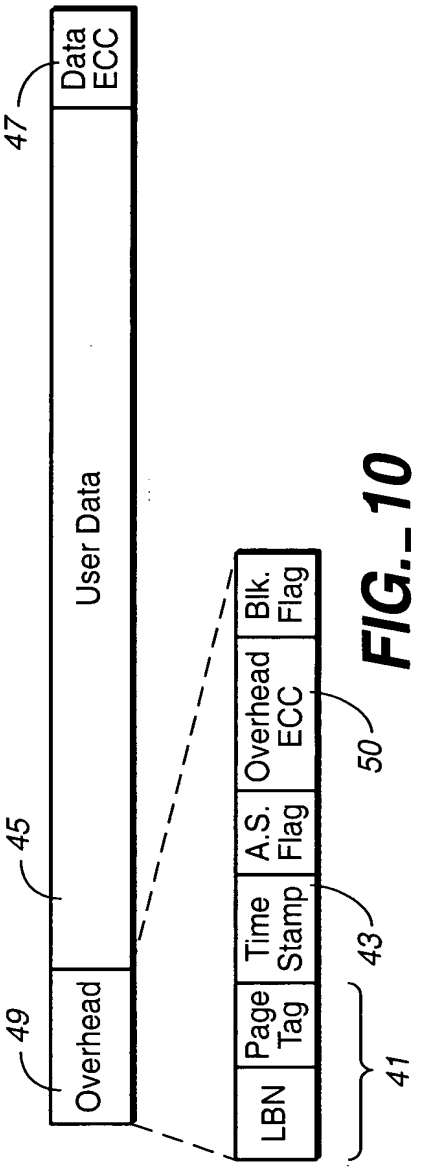


FIG._10

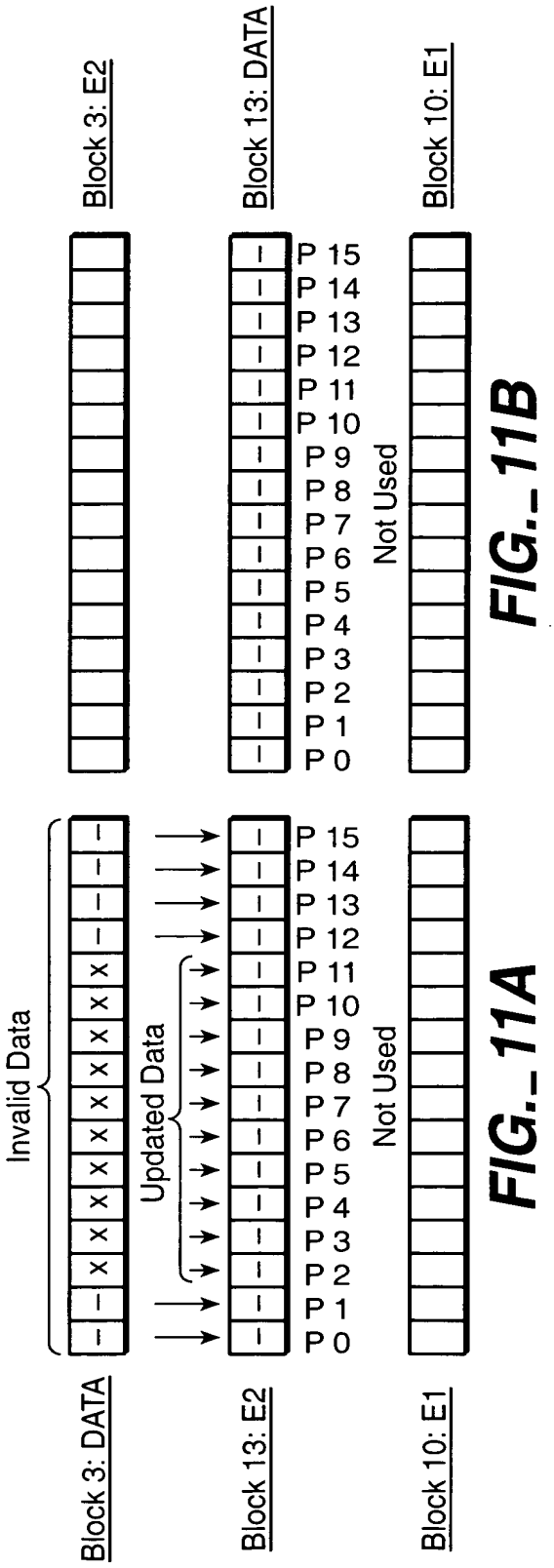


FIG._11B

FIG._11A

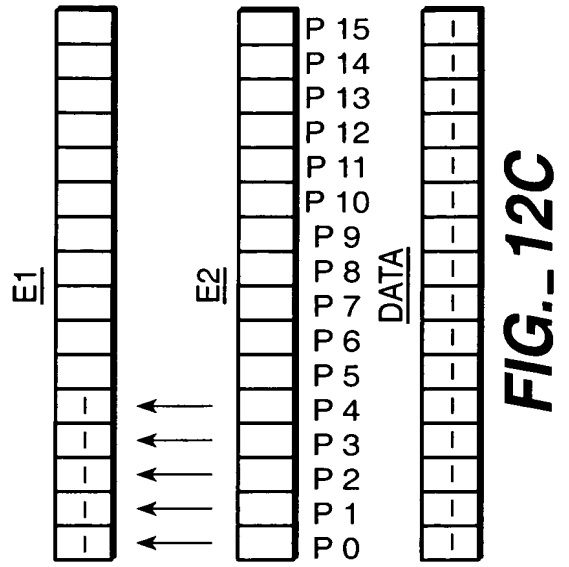


FIG._12C

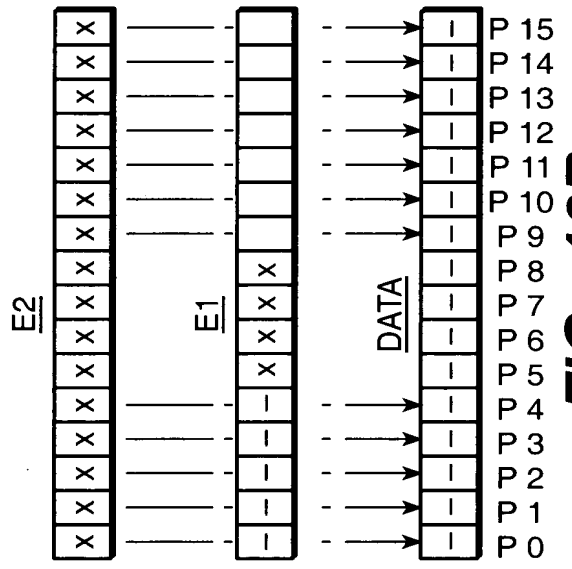


FIG._12B

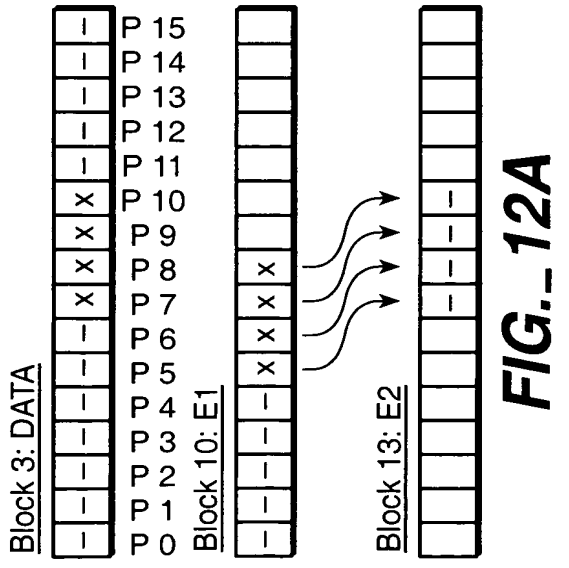


FIG._12A

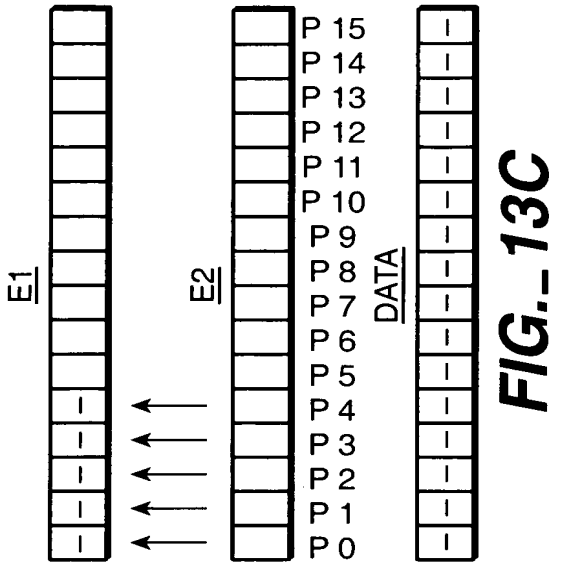


FIG._13C

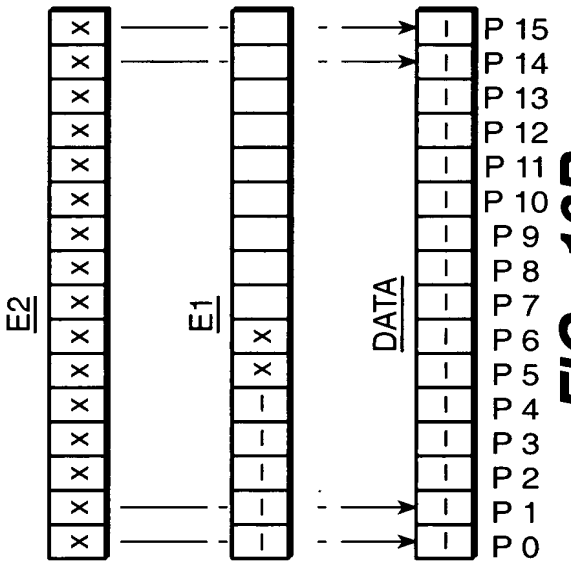


FIG._13B

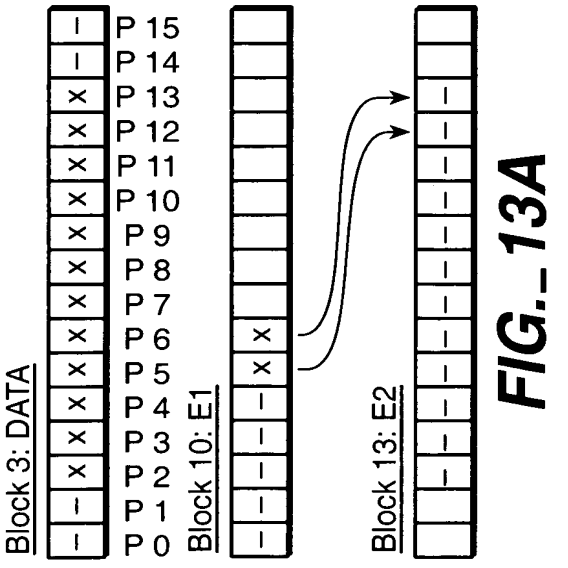


FIG._13A

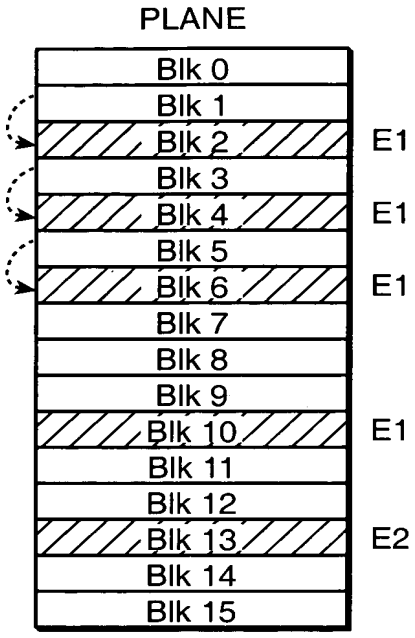

PLANE
Blk 0
Blk 1
Blk 2
E1
Blk 3
Blk 4
E1
Blk 5
Blk 6
E1
Blk 7
Blk 8
Blk 9
Blk 10
E1
Blk 11
Blk 12
Blk 13
E2
Blk 14
Blk 15

FIG._14

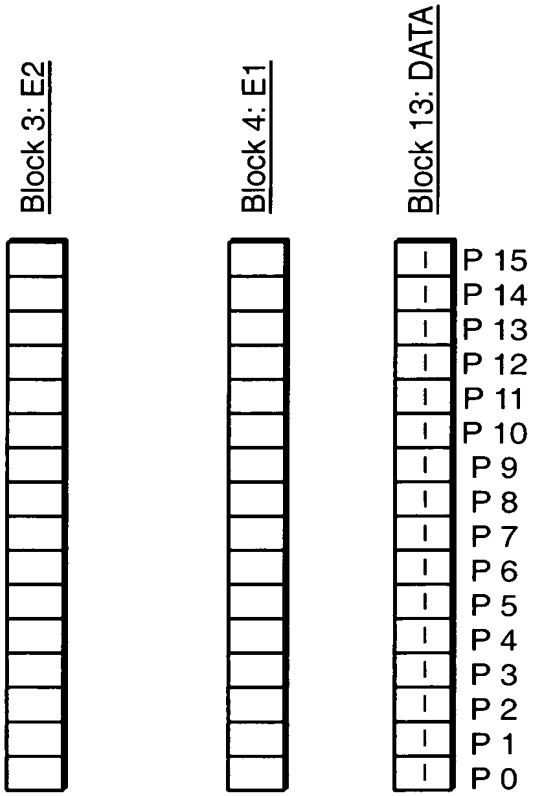


FIG._15B

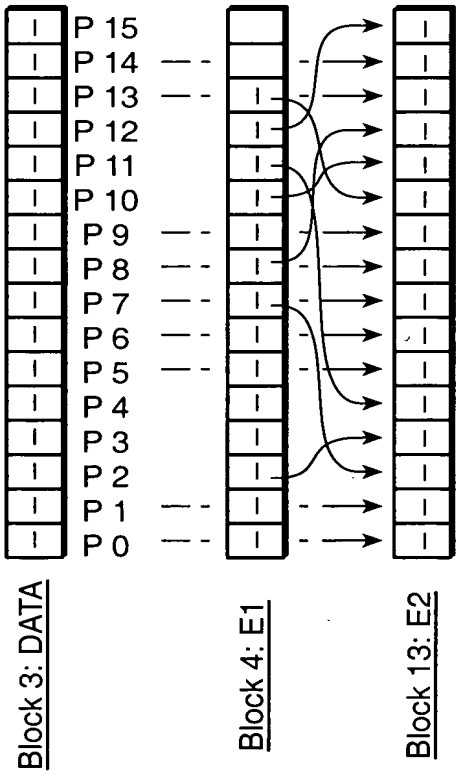


FIG._15A

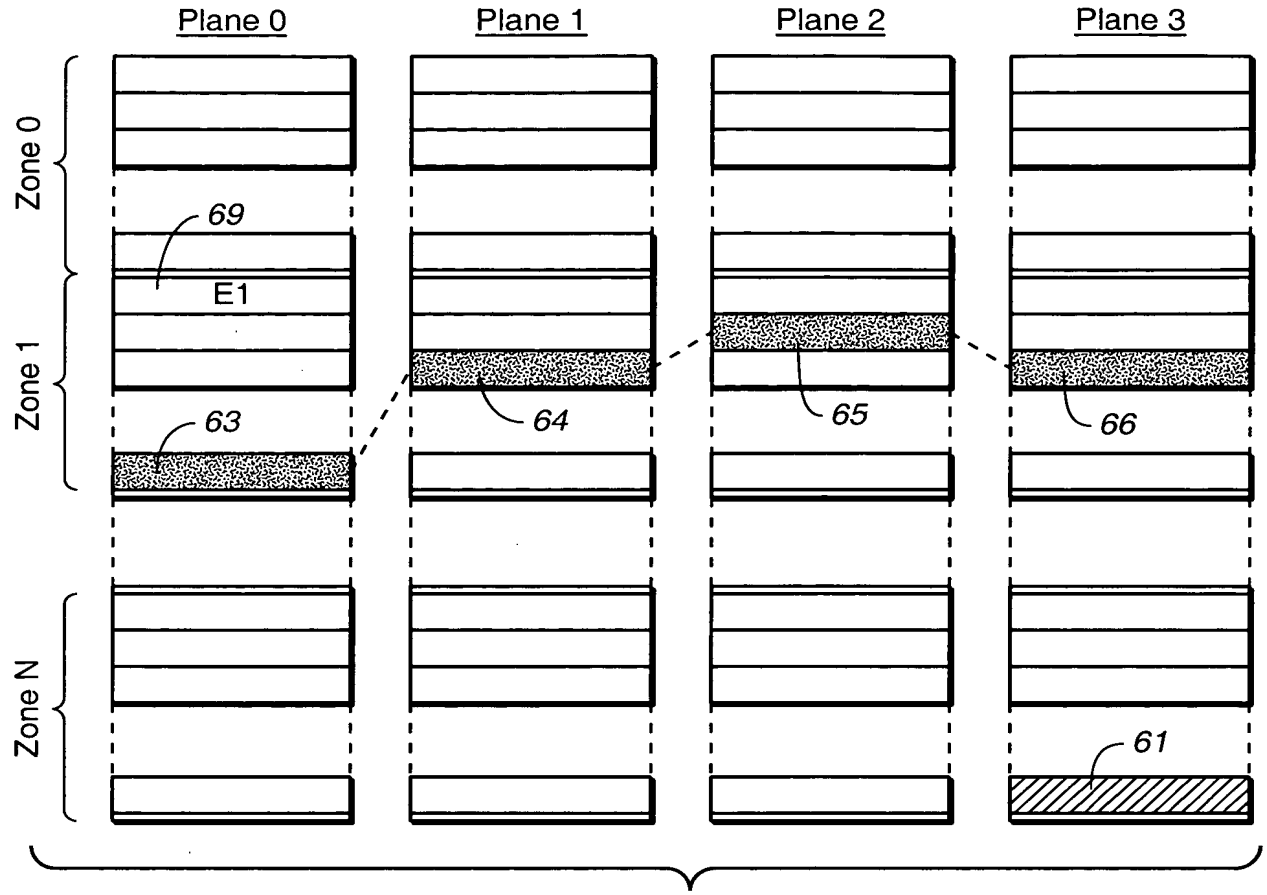

Plane 0
Plane 1
Plane 2
Plane 3
Zone 0
Zone 1
Zone N
69
E1
63
64
65
66
61

FIG._16

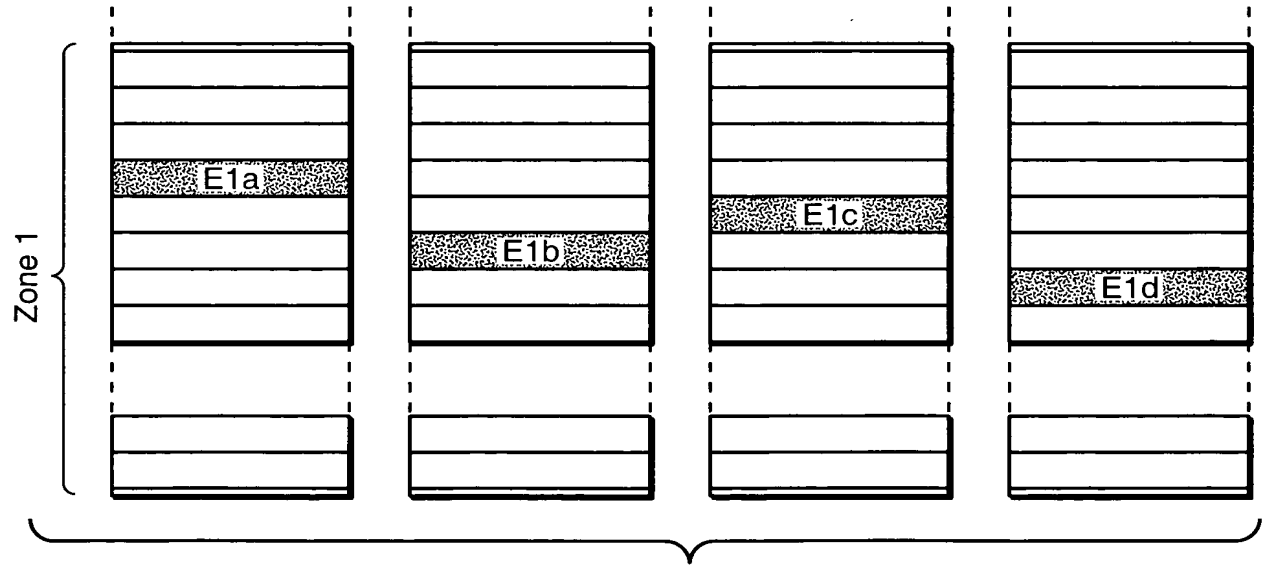

Zone 1
E1a
E1b
E1c
E1d

FIG._17

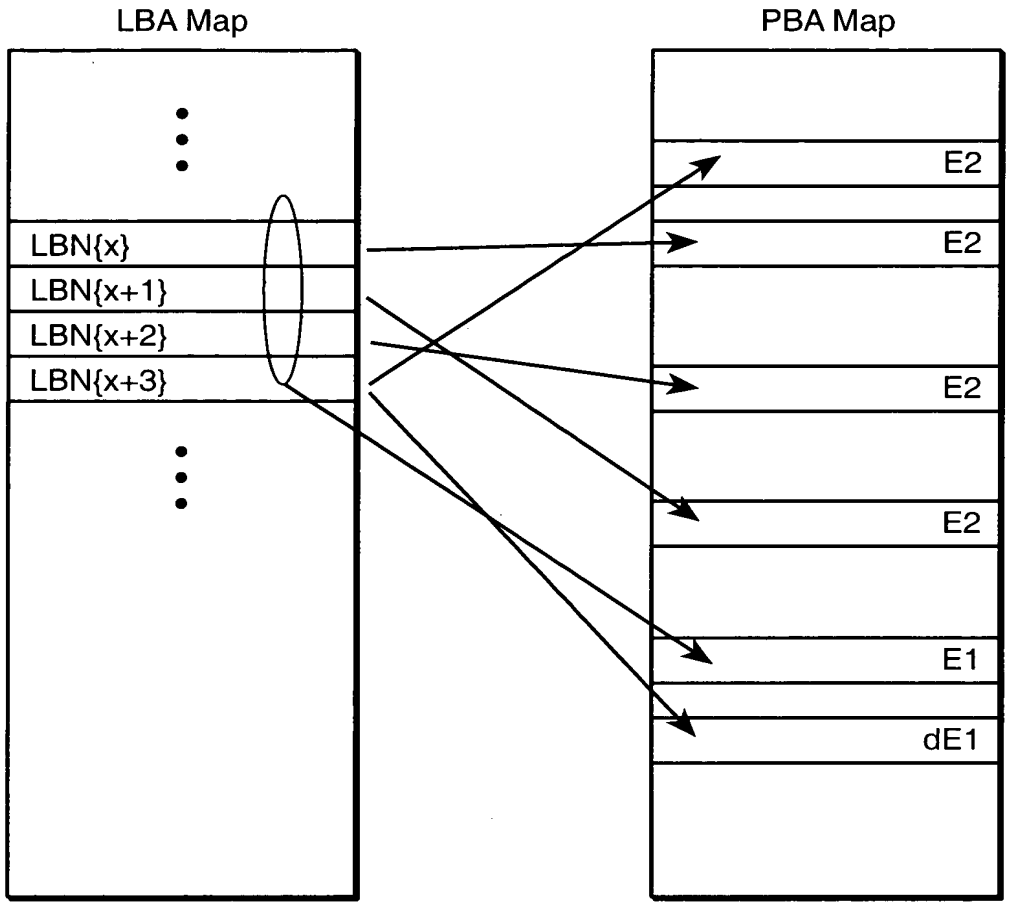
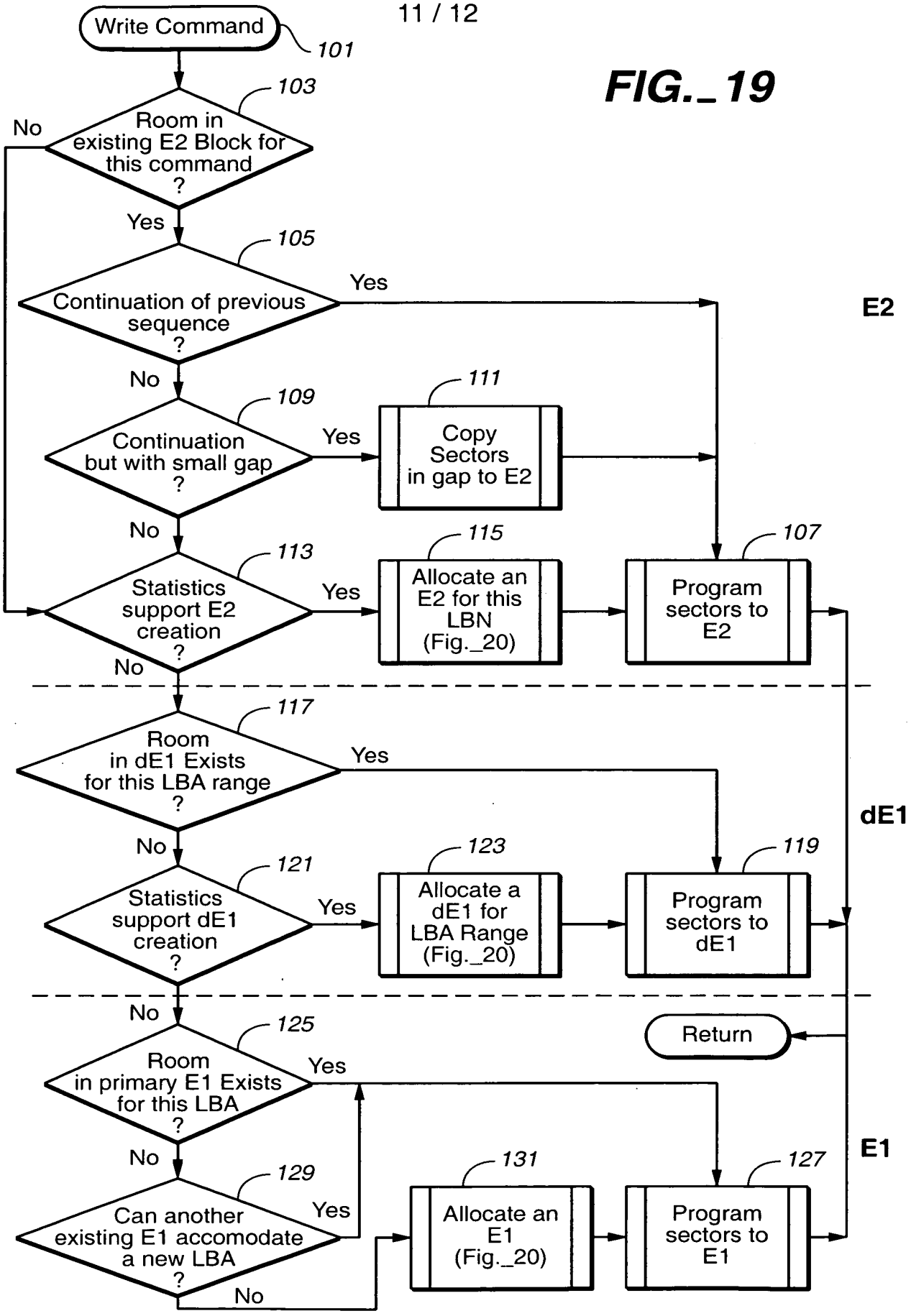


FIG._18

FIG._19


Write Command
101
103
Room in existing E2 Block for this command ?
No
Yes
105
Continuation of previous sequence ?
Yes
E2
No
109
Continuation but with small gap ?
Yes
111
Copy Sectors in gap to E2
No
113
Statistics support E2 creation ?
Yes
115
Allocate an E2 for this LBN (Fig._20)
107
Program sectors to E2
No
117
Room in dE1 Exists for this LBA range ?
Yes
dE1
No
121
Statistics support dE1 creation ?
Yes
123
Allocate a dE1 for LBA Range (Fig._20)
119
Program sectors to dE1
No
Return
125
Room in primary E1 Exists for this LBA ?
Yes
E1
No
129
Can another existing E1 accomodate a new LBA ?
Yes
131
Allocate an E1 (Fig._20)
127
Program sectors to E1
No

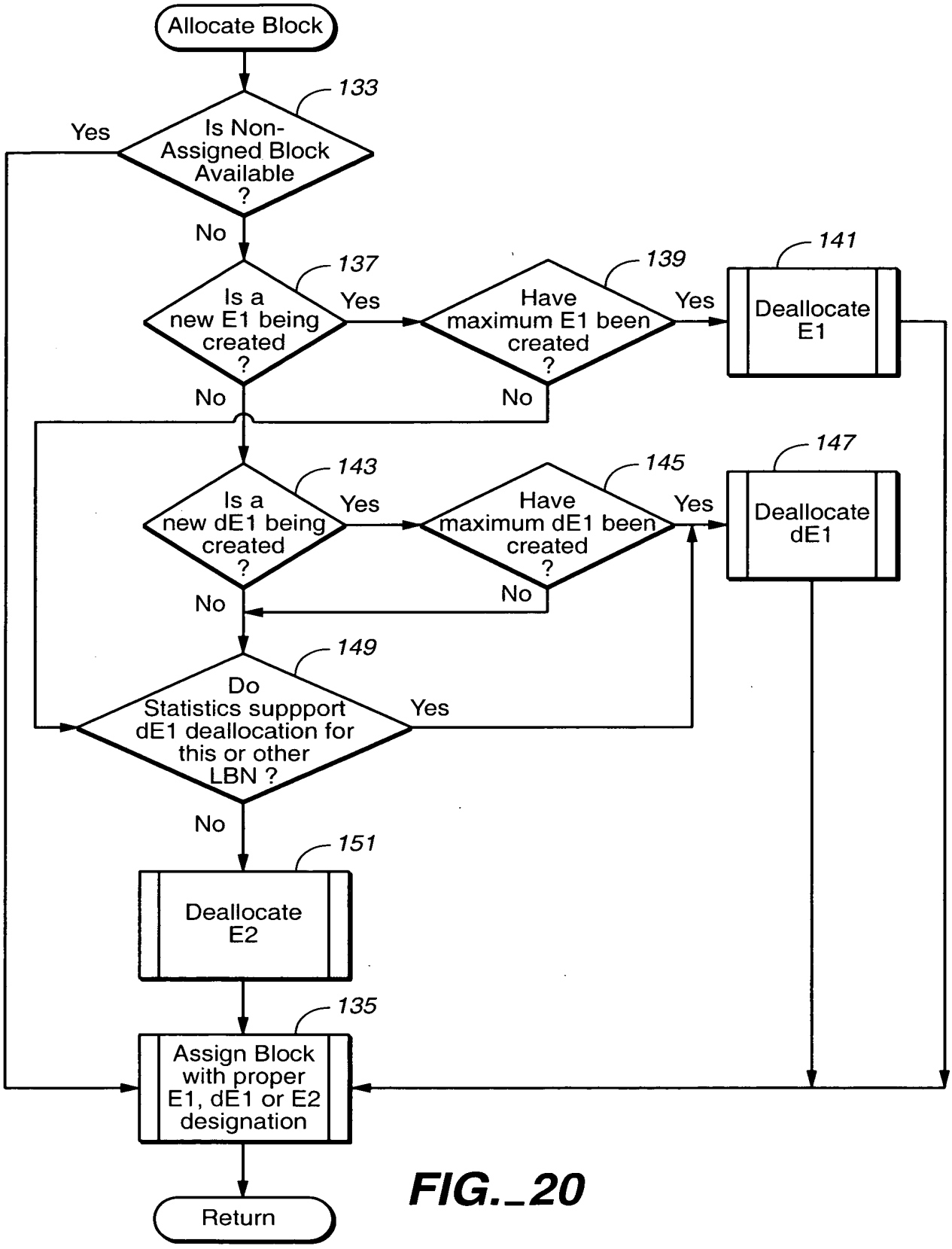

Allocate Block
133
Is Non-Assigned Block Available ?
Yes
No
137
Is a new E1 being created ?
Yes
No
139
Have maximum E1 been created ?
Yes
No
141
Deallocate E1
143
Is a new dE1 being created ?
Yes
No
145
Have maximum dE1 been created ?
Yes
No
147
Deallocate dE1
149
Do Statistics suppport dE1 deallocation for this or other LBN ?
Yes
No
151
Deallocate E2
135
Assign Block with proper E1, dE1 or E2 designation
Return

FIG._20